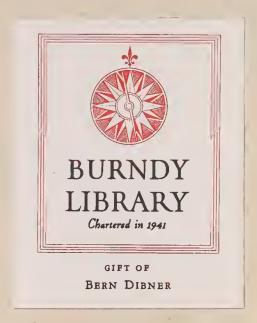


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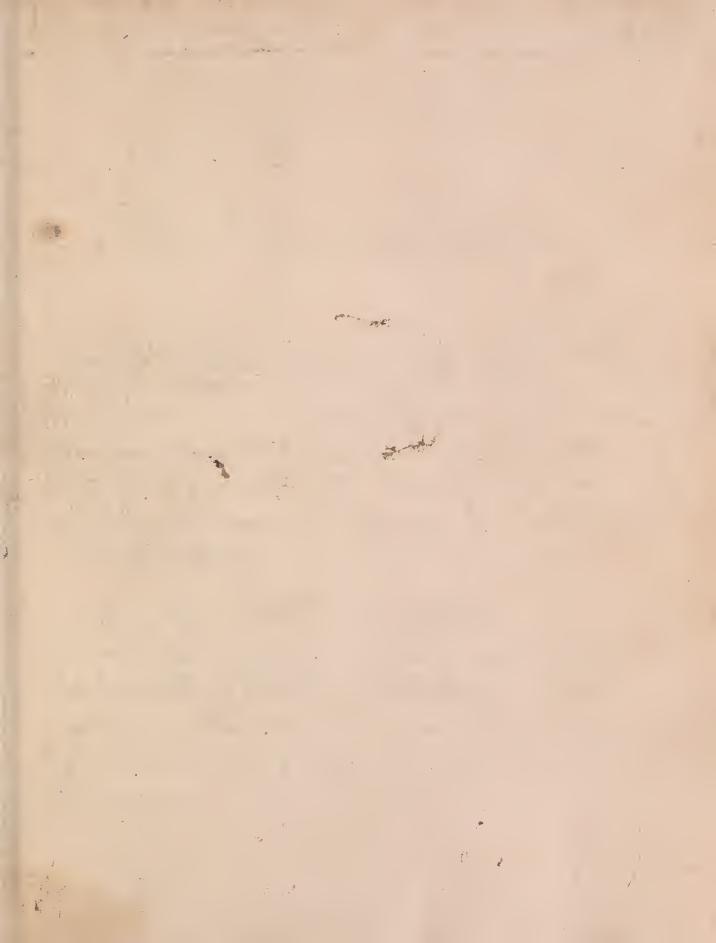












Carlens Review Gottern.

A.

The Nerrous System.

I. As & Tunetions of Jense and Motion, which comprehend so many of Junctions of ganimal animal aconomy, depend on & nervous System; the study of this must be of; utmost importance in y study of general aconomy and its partieular Junctions.

II. Ing Study of g nervous bystem, it is in g dirst place necessary to learn what truly happens there, and this we whall think of more importance than to explain how it does happen. Upon this Olen if Jollowing Propositions are Orawn up.



Ageneral View

(of the

Nervous System).

III. The revous System convists of medullary Substance of & Brain Cerebellum, medulla Oblong eta & Spinalis, and of & same substances continued into & Nerves and by them distributed to many different parts of 1500g.

IV. The whole seems properly distinguished into these fows parts. —

it The medullary Substance contained in the Granium & vertebral Cavity, if whole of which seems to be under a fibrous arrangement, but without i several fibres being seperated by any vensible enveloping membranes.

Whenever we speak, of Junctions that may be in common to every part of this, we shall speak of y whole under y little of & Brain, when it is

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necessary to distinguish if particular parti, we whall take care to avoid ambiguity. 2: The nerves in which y same medallary Inb-- stance is continued, but here more evidently divided into Sibres, each of which is reperated from the others by an enveloping membrane derived from y Sia mater. 3: Certain extremities of there herves, of which the medullary Substance for a certain length, is Oivested of these invellating membranes /1/8so situated as to be exposed to gation of eestain external bodies, and perhaps so modified esto be affected by y action of certain bodies only a These we name the Sentient 4 Tremities of Merves. 4: Certain atremities of & nerves 12/ vo modified as to be capable of a peculiar Contractifity and in consequence of their situation and attack. mento, by their contraction to be capable of moving most of grolid & fleid parts of the Body. These we name y Moving & tremities of o Nerves . They are commonly named Howing or Aurular Tibrer.



That of Muscular Tibres are a continuation of & medullary Substance of & Brain & herver has not been whown by & anatomists, nor universally admitted by & Thy viologists, but we suppose it now and hope to render it sufficiently probable. here ofter.

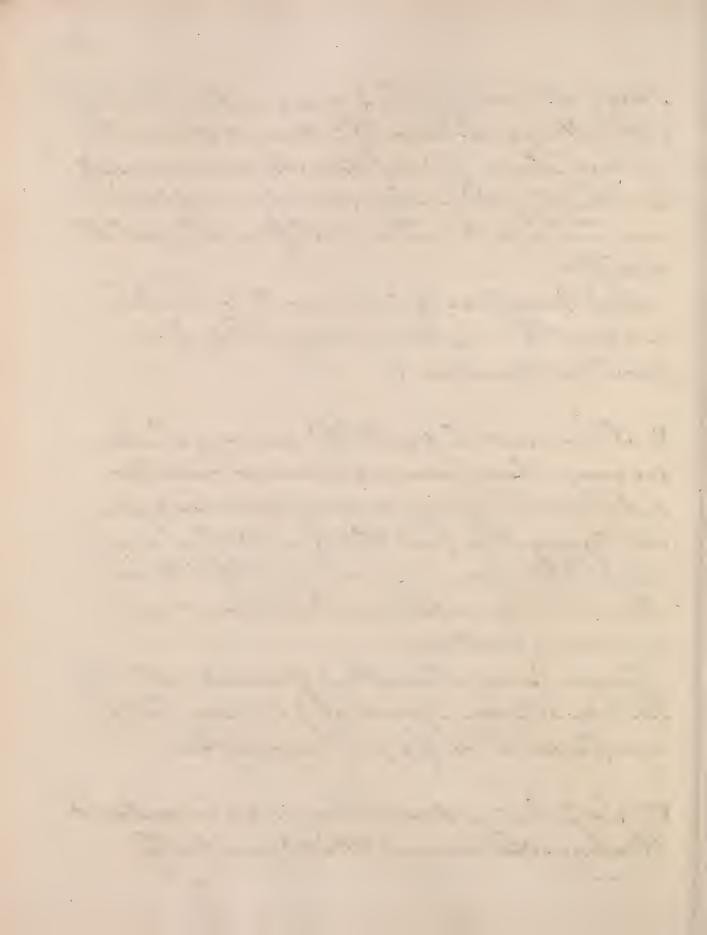
are of Ganglions of of Horoces to be considered as a part of of System Distinguished by a peutian suntion?

peurliar Tunction?

V. I here reveral parts of g nervous System are every where i vame continuous medullary Substance, uniform in its mixture and gene--ral liggregation, and therefore motion may be propogated from any one part of it to every other, while y continuous Substance remains in y vame fondition.

Compression interrupts of Communication of Inotion between of parts of y system that by on different sides of y part compressed.

VI. In a living man there is an immaterial thinking substance or mind constantly



present, and every phonomenon of thinking is to be convidered as an effection or faculty of the Mind alone. But in y living Manthis imma--terial & thinking part of him, is so connected with y material & corporeal & particularly with & nervous System, that motions excited in this give occasion to Shought, & Thought however excited gives occasion to new motions in & Nervous System. This mutual forme. - nication we assume confidently as Efact, but if mode of it we do not understand nor frections to obviate y difficulties that attend any of y suppositions that have been made concerning

VII. The Phonomena of Mervour System.

Ordinally occur in this order. The impulse of
external Bodics in motion acts upon y Sontient Extremities of y Merves and gives occasion
to Thought, & this we call Sensation. This
Sensation according to its hind & various
modification gives occasion to Volition or
Willing y Inotion of certain parts of Body,



and this Volition gives occasion to i fontraction of i muscular Tibres by which i motion of the part desired is produced.

This is an example of i most ordinary face, but we do not vay it is y only face of communication of tween if different parts of I hervous System.

VIII. as & Impulse of Bodies on & Sentient Extremities of y Nerves does not occasion any den ation un less à Prerve between y dentient. Extremity & Brain befree from compression, or other interruption; & as Polition does not froduce any Contraction of muscles unless the Nerve between & Brain & Muscle be quite free; we conclude from both facts that Sens ation & Notition are Junctions of & Brain alone; that Sensation wises only inconsequence of asternal impulse producing motion in y dentient 4tre--mities of & Herves, & This being thence propo--gated along of nerves to o Brain & that the Will operating only in & Brain by amotion begun there & propogated along i nerves produces on traction of marcles.



IX. From what is now said we perceive more Coistinctly & Different functions of of veweral parts of y nervous dy tem formerly distinguish. J: The Sentient Litremities are partieutarly Vitted to receive & impressione of external bodies, & according to go ifference of these impressione to propogate determined motions along & herves which communicated to & Brain give occasion to Senvation. 2. The Brain (IV.1.) is apart fitted for & vareefitible of these motions with which Senvation & y whole conveguent operations of Thought are connected, & thereby or otherwise is fitted to form a communication between the Instion weited ing Sentient & those arising in & moving Atremities of herves, often remote and Vistant from each other. 3. The Moving Atremities of Nerves are To frames as tolo capable of Contraction & of howing this Con--traction excited by motion propogated from & Brain, and communicated to be contractile fibre. 4. The nerves more strictly so called are a collection of medullary Tibres each envellaped in its own membrane, & thereby so



seperated from one another as to admit of no Communication of Instion from one to gothers, and only of motion along y continuous medal.

-lary substance of grame fibre from gatremi-ties to gorigin, or contrarisise. -

X. From this view of y parts of g Nervous bys-- tem. fof their several Junetions & communication with each other, it appears that & beginning of motion in & animal Oconomy is generally con-- nected with Senvation, & that chief Meets, y actions of y animal aconomy convivt in and a spend immediately whom y contraction of Moving Tibres, & therefore in studying , Nervous System it will be proper to convider , S, Sensation, and with that y ganction of y Ventient & tremities. 2. The aution of & moving Fibres . 3. The Com--munication between there or & Junetions of the Brain. In convidering these three the Junction of y nerves more strictly so called. will of course be aplained.

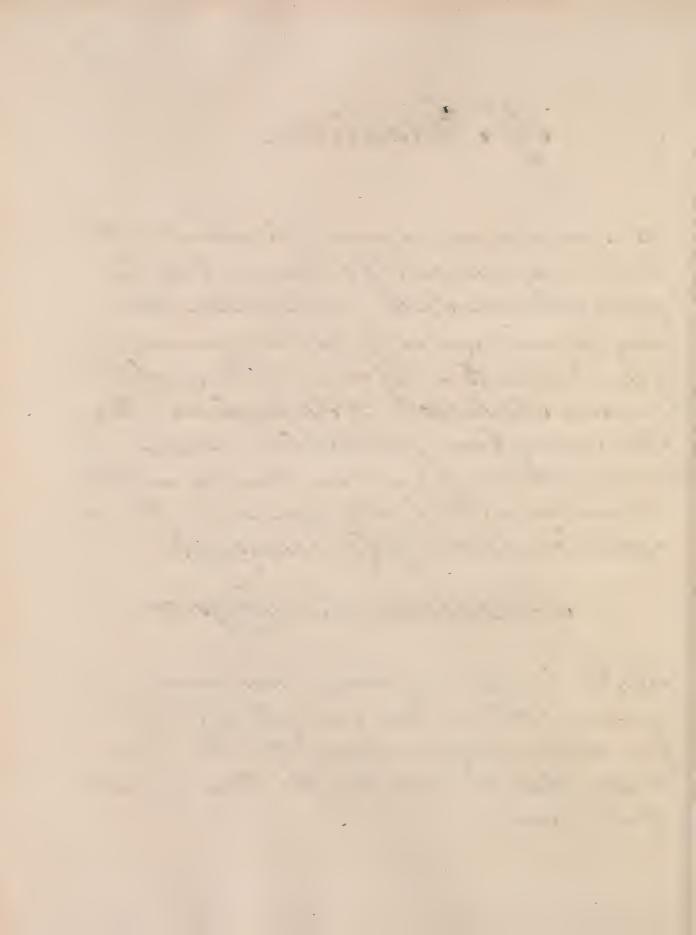


Of Sensation.

XI. Sensation may in general be referred to the mind's being conscious of g changes which hap--pening Rervous System, but our Sensations may be considered as of two kinds, one writing from y impression of afternel bodies which se name Schrations of Impression; the other arising from y mind's being conveious of it own actions, of genotions it weiter, or of the The motions weited by other causes, and there we name Sensations of Conscious hels.

Sensations of Impression

XII. The Sensations of Impression are very verious, but have been generally referred to Since Heads or flafses, Commonly called office Senses, that is, those of sight, Hearing, Smell, Faste & Jouen.



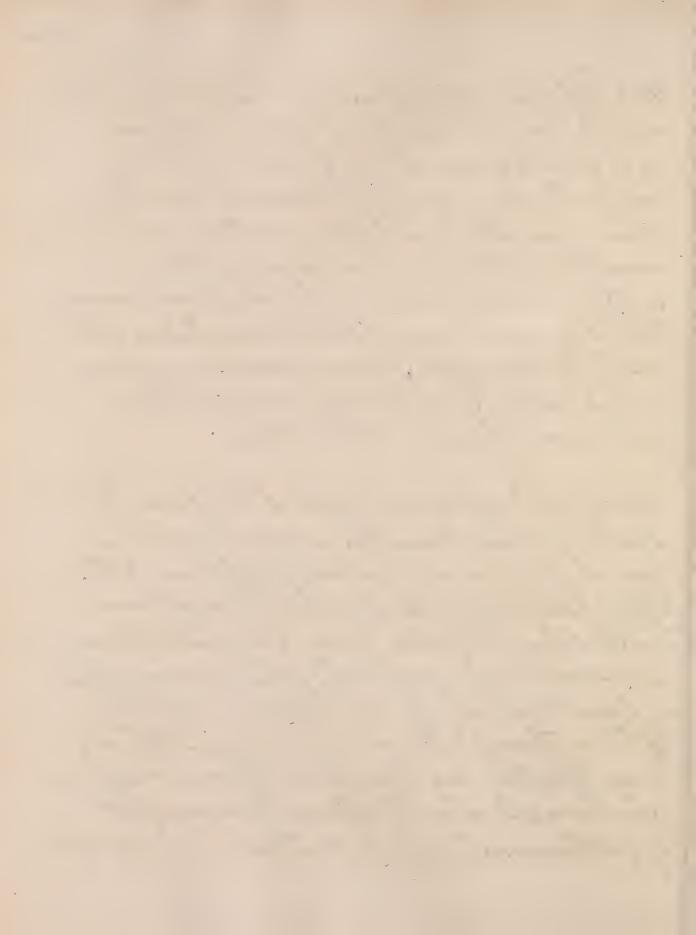
XIII. Of these of four first are well distinguished, each as forming a particular Class or Glows.

J. by instard or qualities of jeternal Podies.

acting . 2. By i part of i human body acted afron, generally limited to a small space, and connected with a peculiar organization.

3. Toy i unsations ariving, in each very various, but it is warment time referred to one General ; and lastly by this that i sens attion arising gives no Indication of i network of its action.

XIV. With regard to grift brind of Sens Sion, Jouch, no vuch characters concur in establishing, one class, tit is only formed by referring to this one class, tit is only formed by referring to this first head every sens ation that does not manifestly belong to gother four. This head of Jouch is, as commonly spoken of found to comprehend I Sensations which arise from gimpression of bodies of very different natures, qualities and modes of acting. 2. Sens ations from Impression which may be made indifferently on any part of grown of fort not



connected with any particular Organization. 3. Senvations which have no such generical Afinity as XIII.3. - 4. Sensations which give such indication of grature of geternal ordices acting & of their mode of acting, as we arguire in this manner only. 5. Jensations which may arise from Impressions made on any part of & System, but do not any more than thore ofg your Jenses, give any Indication of inchare of y Codies acting. 6. Smootions arising from impressions made on a particular part of the dystern only & therefore depending on a particu--les condition or organization of such part. y. Lastly, Jens ations which exend of Infinel wion but of Consciousness. It is therefore needs way to subdivide & irrange what is comprehended under of general head ouch.

XV. By South we perceive y impulse of bodies in motion, & thereby acquire our notion of the force or momentum of bodies. The Seniation is varied by godinetion of jimpulse & our ation

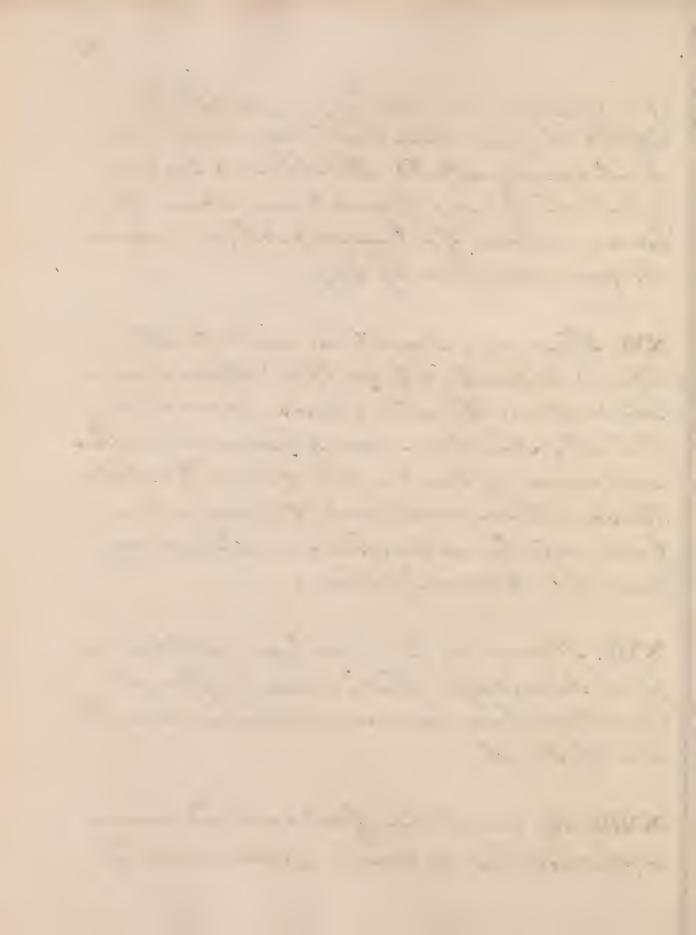


of impression, gnumber of gharts of glody affected at grame time, or by their being more or less equally offected. It is thus we acquire of gnotions of grize, figure & convistence of Codies, gnotions of extension & solidily inseperable from our notion of body.

AVI. These are & Sensations most strictly referred to Souch, & from these & from some of considerations of & other Senses, we conclude that all & Sensations are only so many different modes of South or purceptions of impulse. The Sensations mentioned XV. may arise from impulse or profsure on almost any fact of & Nervous System.

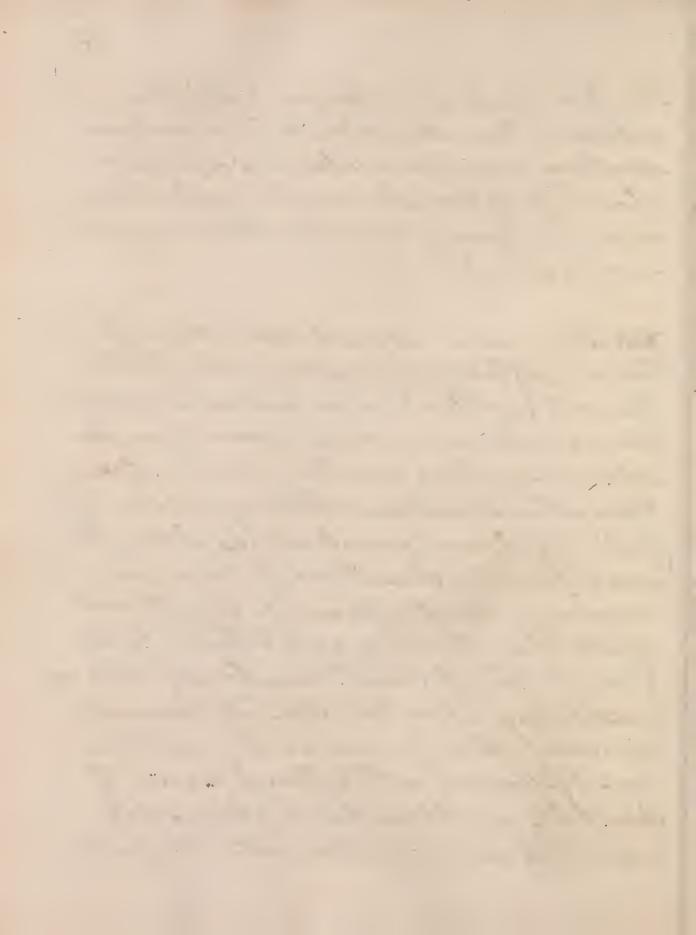
XVII. It is owing to i analogy mentioned in glast Paragraph that so many different beneations have been comprehended under the head of Joseph:

XVIII. By impulse of external bodies varioutly modified se receive & Sensations of



Puncture, prefoure, distension, distraction, contorsion, laceration & Ar., & like Sunsations sometimes arive from internal Imprefsions whose mode of Impulse is not evident. - May we conclude from & Sensation that Gimpref-sion is grame?

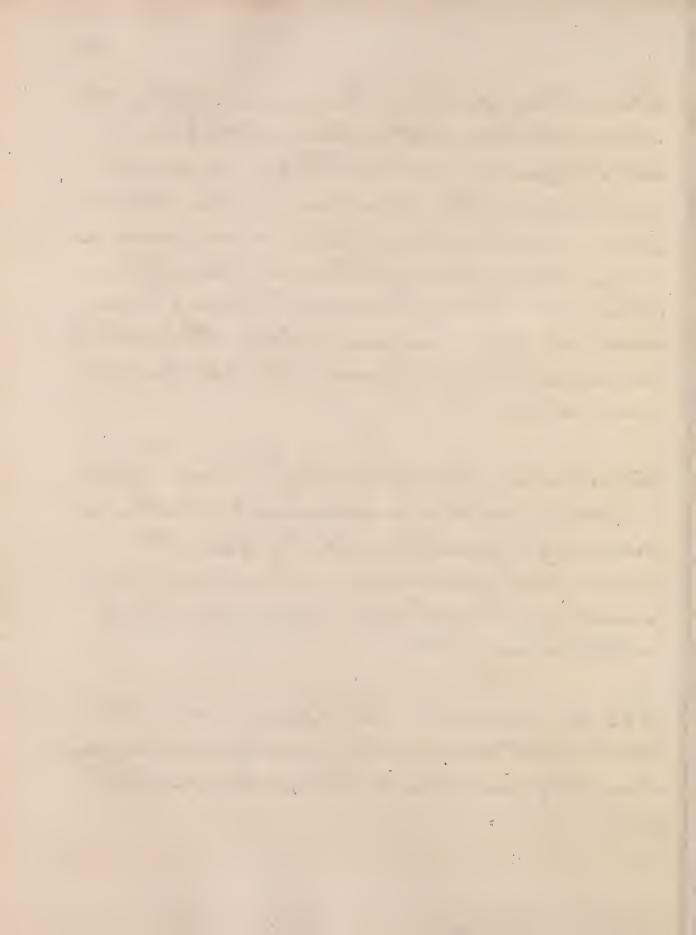
XIX. Sirom certain external applications of - bodies in Efluid form, distinguished by their chemical qualities & whose mechanical properties are unknown we receive in some fases, Sen--sations revenibling puneture, incision, lacura--tion or other vensations attending Solution of Continuity by mechanical poisers, but inother cases of peculiar densations of itching and smarting without reference to any external agent. These the commonly referred to the general head of Touch may be convidend as constituting a poeulier verse of themical. Ourimony. It is in common to gushale Her-- vous System only with different degrees of Sensibility as y Etremities of Glorves are more or tels covered by other parts interposed.



The matters operating here are very often the same with those that produce I mill & Jasta. All of them are distinguished by chemical qualities, & to their operation on these three serves grame einemostance are necessary as in a mutual action of bodies in shehristry. - Grom if Senvation of puncture ariving from chemical Acrids, may we suppose their mode of impulse to be analogous to that of the mechanical acrids?

XX. The Sens etion of Heat & Cold always referred to South we consider as belonging to a particular Sense very different from that of XX, in this respect, that y Sens attion gives no indication of y mechanical properties, or of y action of the matter producing it.

XXI. In g Sens ation XIX &XX, & in some others attended with pain, we hardly distinguish the pecu-liarity of g Sens ation & after I to it as painful only.

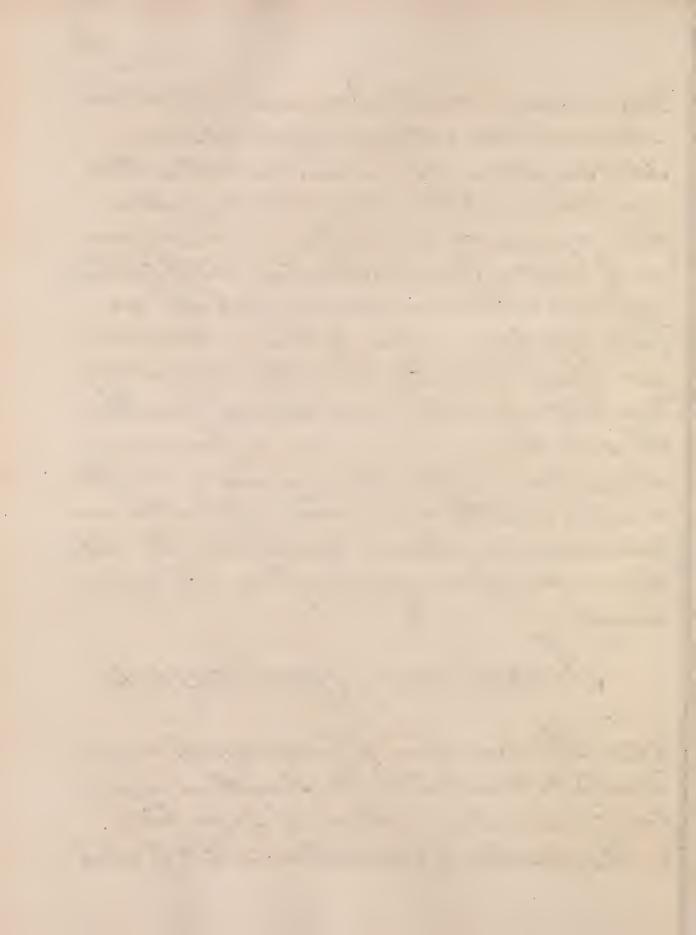


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XXII. Many Sensations execonstantly attended with propensities, & therefore form a peculiar Set of Sensations. This is peculiar to them that very Aten sedo not distinguish & Impression from y propensity very often we are only consci--our of glast. - These propenvites are of two hinds, some are directed to an external object and are called appetites, as these of hunger, thirst and last others are directed to excitting motions of Coog itself only, chiefly for y purpose of exerction. The Sensations giving occasion to these several propensities are often little perceived, & it is often uncertain how they are produced, whether they are from aturnal or internal Impressions and whether they are Senvation of Impression or of Ponvei-

Sensations of Consciousness.

XXIII. The Sensations of Conscious pels may be referred to these Heads. I . Sensations arising from y diminution or absence of Impression. 2. The Sensation of a perception, or that by which



we acquire y notion of our wistence & edentity. 3. The Sensations asising from get ate of Thinking. 4. Sensations arising from y gereive of Volition. 5. Sensations wrising from actions or from the anotion of different parts of y bory . 6. Sensations arising from y State of action in general or in particular.

Sensations are comprehended, of which we cannot

here enter into godail.

Saws of Sensation.

XXIV. The introdicions producing densation may bedistinguished as external & internal. The first ere these of Podics external or extra-- neons to y human body, whether they wet directly any aternal parts, or are conveyed into the internal & act there, & whether they are entirely from without, or if they exertireatural Codies generated or formed within . - The inter--nel impressions ere ; actions of ; body itself which return or reflect an impulse on the



Nervous System. It is Aten difficult to distinquish & Sensations of internal Impressions, from & Sensations of conveiousness.

XXV. To Sensation from Impression a certain force of Impression is necessary or below this no elemention is produced. This force is also limited on yother hand as in a high degree it destroys the organ of indegrees approbabiling to this, rather a general Sensation of pain than any particular one is froduced.

XXVI. Within these Simits our Sensations are not exactly proportioned to force of Impression, but for y most part relative to y change that is produced in y Nervous Lystem, without a lensation often seems strong or weak as it is stronger or weaker than that which has immediately preceded it. For y same reason y limits XXV, are very variable.

XXVII. Different Sensations do not necessarily imply Different hind of action producing each, but sometimes they arise merely from a different

Jury. - Does the sensation in tall warmen

,

Degree of force in y same.

XXVIII. It appears that i diminution of the force of Imprefsion is sometimes active with regard to if Nervous System, & therefore that y motions of our System depend more whom Servation than whom Impression.

XXIX. To Sensation from Impression e certain Ouration of Impression is need bory.

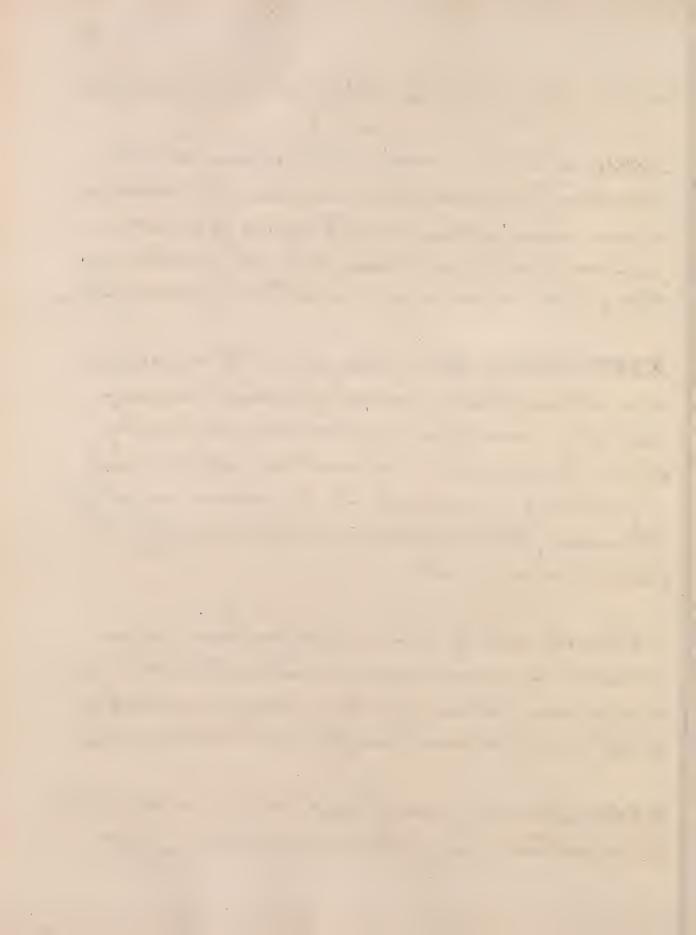
XXX. Al & force & duration of Impression are in a due degree, y vensation of ten remains for some time often & Impression has ceased.

XXXI. The Mind admits but of one Sensation at one time, so that of two Impressions made at the same time, if one only is perseived, if other is not or if i mind as in XXX is occupied by Sormen Sensation a present Impression is not perceived.

XXXII. The mind's resting on one Sensation is called attention. This like of wration XXIX, is



neefsory for giving an Improfision its Juli Had. XXXIII. The Mind seems to be determined to attention by force of Improficen, by i pleasure passion froduced by these, & lastly by these Ima-tions being more or less related to y person feeling. XXXIV. Tho' & Inind admits but of one Sensa--tion at one time, several Impressions may at at y same time in producing Vensation. Such is gease when I densations which would be produced by seperate Improfsions are all of the same flat or Genus, as in graves of folour, Sound, Odour & Jaste. XXXV. In each of these of Impressions corres-- prondent to several Species cadanite in froducing a single Sensation, which is always a Newhall ordifferent from either of 3 reperate Vensations. XXXVI. In all Cases of such Einian it may take place either when & Improfisions are waitly

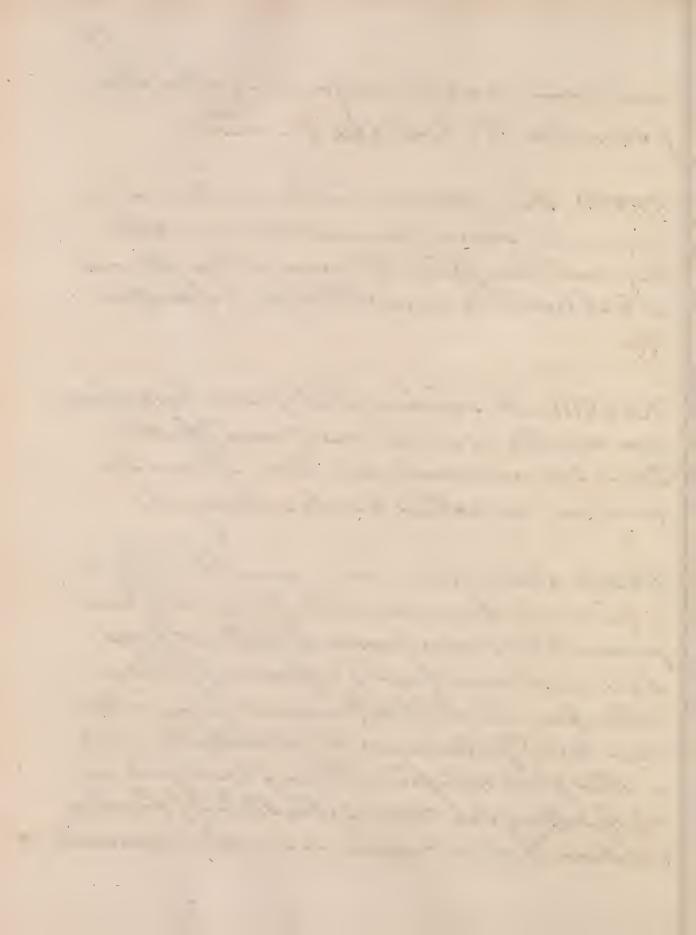


ynchronous, or when y one succeeds y other before y Vensation of first XXX has ceased.

XXXVII. Tho'g Motions excited in y horses by Impression remain for some time as in XXX, they must be supposed to become continuelly weak er & at length to cease & therefore y Sensation also.

XXXVIII. It is observed that of same Impressions soon repeated do not produce grame Ifcether Popore, but continually left. Hence all new Im-pressions are cotoris paribus strongest.

XXXIX. Impressions being given their Heets
in producing denvation are different indifferent
persons, I ling same person at different times.
This must arise from joifference of Gody's
acted upon The chief difference occurring in there
seem to be following. S. The state of Jeguments
or other parts interposed between jimpressing body
of medullary Substance. 2. The state of j medullary
Substance itself, as it appears in lige, Sy of Jemperament.



3. The State of Tension in in medullary Substance by if Blood refiels connected with it. - 4: - The State of it produced by heat. - 5: The State of it produced by former Imprefions - 6: - The state of it Produced along which if motion is propogated. - 7: - The State of generium. - 8: The State of Attention.

Morves distributed to them or by y Conditions (XXXIX)

Of these Merves, but anatorny does not always
enstainly determine of distribution of y thremities

of y Merves or Thirdore y sensibility of several parts
is chiefly to be ascertained by Experiment. — The

Experiment is however also fall across.

XII. Particular denvations arise from Impref.

sions on certain frants only . - I : Breause the

ventient Extremities are so situated as to lige 4 posed

to i lition of certain externel Toodies only - 2: Be
cause i greatient fatientities are connected with

an organ that increases if free of i external tigent

or modifies it in i manner necessary to adetermined

Impression . - 3: Because i dibres of greatient



Atremities by their vige or tenvion are fitted to be adled whom by certain external Todies only . 4: Because grentient Atremiteis are by y Constitution preserved in a certain State that renders them vanvible to a change. 6: Because y ventient 4 tramities have such Connection with great of grystem as produces particular Sflects from Impressions made whony. XIII: Different Sensations are accompanied with different Fudgements concerning & Toolies making made. Some den ation are referred to external bodies at adistance, others to external bodies in contact, & other only to greeting body itself. In y last cave y tens ation is vometimes referred to ghart whom which ig Impression is made, with regard to external parts, very accurately, with regard to finternal much les vo, & commonly of internal Impression or Sensation of it is referred to corres--pendent external part with some obscure distin-- etion between internal & apternal. In some Cases of Sensation is not referred to the



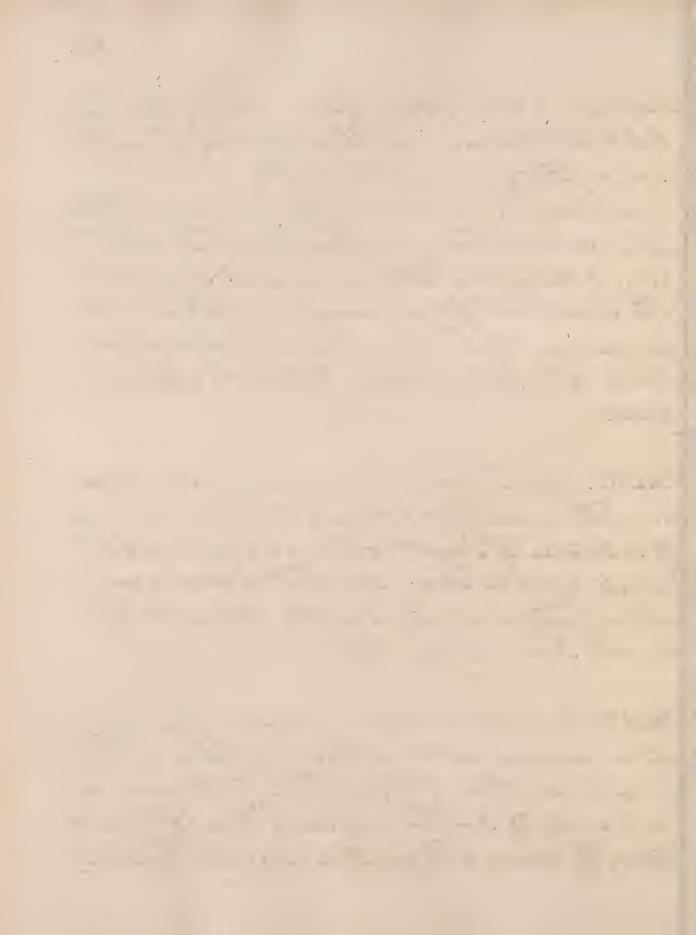
Sart whon which if Impression is immediately made but to adistant more very ble part to which a motion is propogated from if part impressed.

Sometimes a Sensation is referred to a part from which motions, producing Sensations, wind to proceed along if never , now under an unusual Somfression.

The Sensations of Conveiousness are retrom with any accuracy referred to particular parts vonly indistinctly to a whole Inambrane, velocan to external agents.

ALTII. We are disposed to combine our Sens ations as united in one object to form if Gotion of individuals of Substance of Dentity of this we acquire what we call Complex Deas. The chief of these is own notion of self or over own Dentity. The parts of complex Deas are afraciated.

XIIV. We compare our several Sensation of from There agains new Sensations of Gelation, I chief of which are there of Resemblance, Difference, and Contrariety of Dovition, in place time, of Course to Sfeet, of means of nos. It is especially Relation

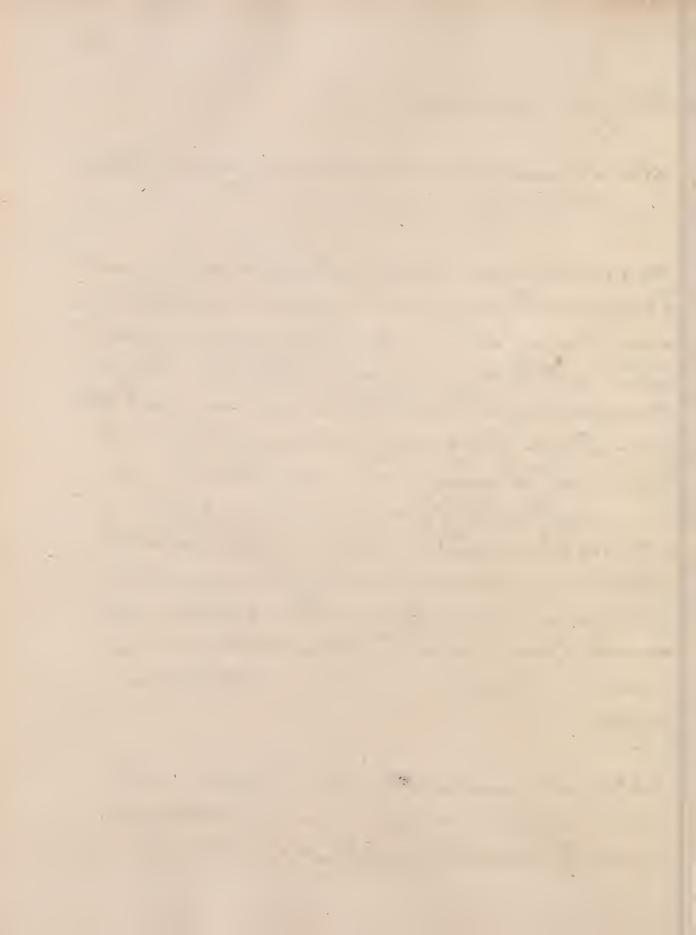


that afrociates Idear.

XI.V. The most of our densations nearly all of them are either painful or pleasant.

XIVI. The Jerms of painful & pleasant, agreeable Voisegreeable are generical Terms comfrahending agreat many Species to which & generic Sorose should not be promisenously applied . - I think it may be proper to distinguish on y one hand the agreeablenes of figure 14° delicion ness of faite. & if pleasure of wenery. - and one other hand the Vivagreedling of figure, quineavines of Jigure & pain of a wound . - There is a your ation for establishing different orders of these Sensations, but of fixing of limits between these & afrosting the several Spesier may bedifficult, I we cannot be certain of applying & term with strict fro--pricty.

XIVII. In general Servation of lection within certain limits ere always correcble, & therefore of want of Sensation, imperfect & indistinct



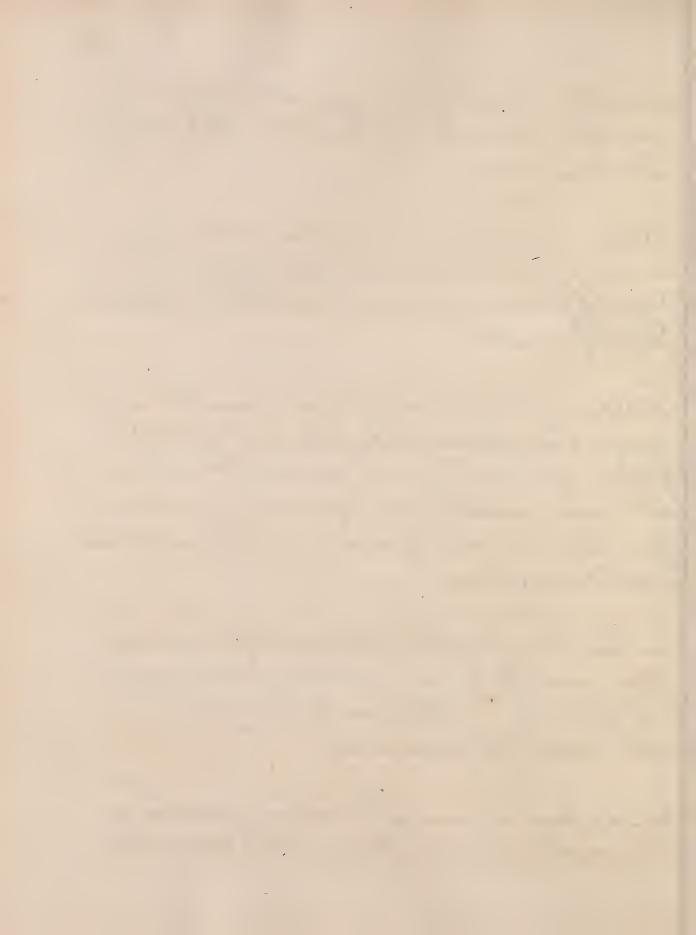
Sentations, are always disagreeable. Inhetion of every hind, y Sensations of Debitity & of Difficulty are cleare uncary.

MIVIII. In particular Servations, their being uneasy, pleasant or painful often depends on the Degree of force in & Improfision modified by & Sensi-- Vility of & System.

XLIX. as Improfisons by being repeated give useaher Sensations, Improfisions at first pain-fall may be changed into pleasant, by pleasant into uneasy, hence of existe of veriety, of pleasure of neverty of Jesiste of increasing of force of pleasure. Infragions.

I. There is a fondition of Impressions rendering them agreeable or disagreeable which we cannot certainly refer to their force & this fondition we call a quality of Impressions.

II. Impressions are It rendered agreeble on disagoreable by Combination, Relation Volucesion.



III. The Force of Sensation is as The Improfisch is new or unexpected. The Force of Impression, The Quality of Impression, The Sensibility of glorgan or Venvorium, The Habite of y System. The Pleasure or Pain accompanying it, The Smotion produced by it? The State of attention. ballance one another, & must be taken together. III. When It Servations formerly received an again renewed by & some object, it is often with a vensation or Consciousness of their having been formerly received. Ihis we'll Reminis-wence. It is if chief yound attion of our notion

LIV. Notion formerly received ear be renewed without of presence of their which formerly gave oceasion to them, & if this is with a Sensation of Difference between I two notions,

Cof Soentity.

July whether the is Smagenation. I. I some forwarde as LIV.

.

Object, such a renewed notion is called an Dica and Glandly by which it renewed is called Memory.

IV. Notion formerly received may also without if fresence of folicit be renewed in such a manner, that if Inin does not perceive if difference. If y one lase from if ther, other fore such renewal is always with if persuasion of if presence of Micet. The faculty by which such renewal is made, in called I magination more strictly.

IVI. The fauves of Meminiveence & Imagination are difficultly assigned. - Incomory we can refor to a life intion which of marking of Melation froduces & it is faithfull to that afrociation in all its Circumstances.

IVII. Memory & Imagination renew distinctly

g Dear of Jeeing & Hearing. All others are
renewed imperfectly or not at all. But all others
may be afraciated with it sensations or Dear

of Seeing & Hearing & these become right of the

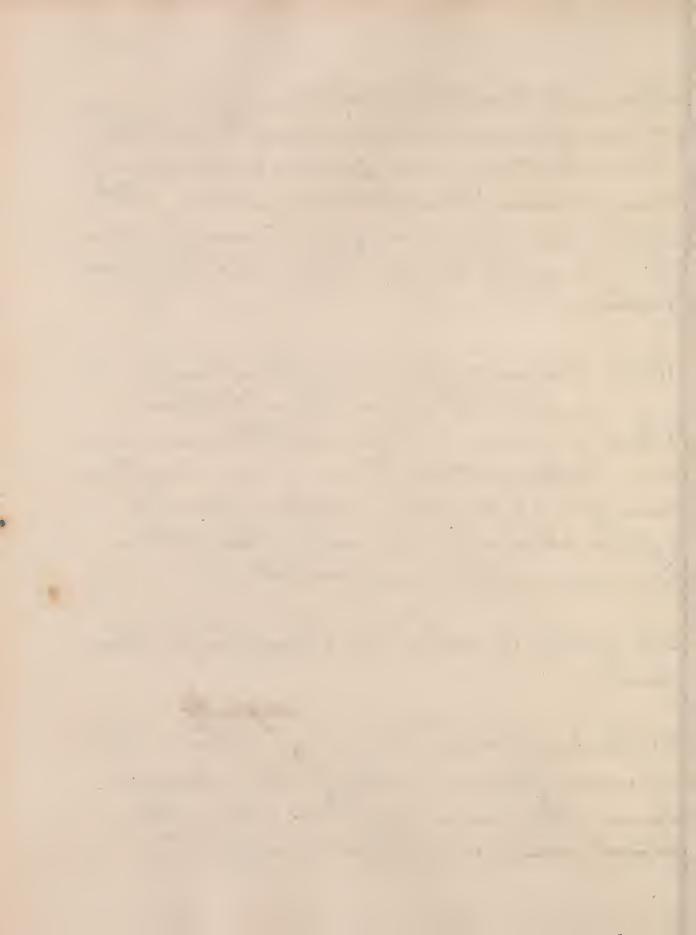


others, with this Effect that i Memory in renewing a signs, volar renews in Joean connected with them as to make their several Melations & life them to menew if general Dee of Pleasure or Pain that then other or perticularly to renew if motions of a Mind or if Instions of it Body, which they formerly produced.

INTI. Memory is deferent in different persons and in grame person at different times of diferent one of this veer injuneral to be Different States of Venerium - Different Some of vingle sensations. Sifferent Sorce of Relation & Venerations of making their Relation Veing more or lefs frequently repeated.

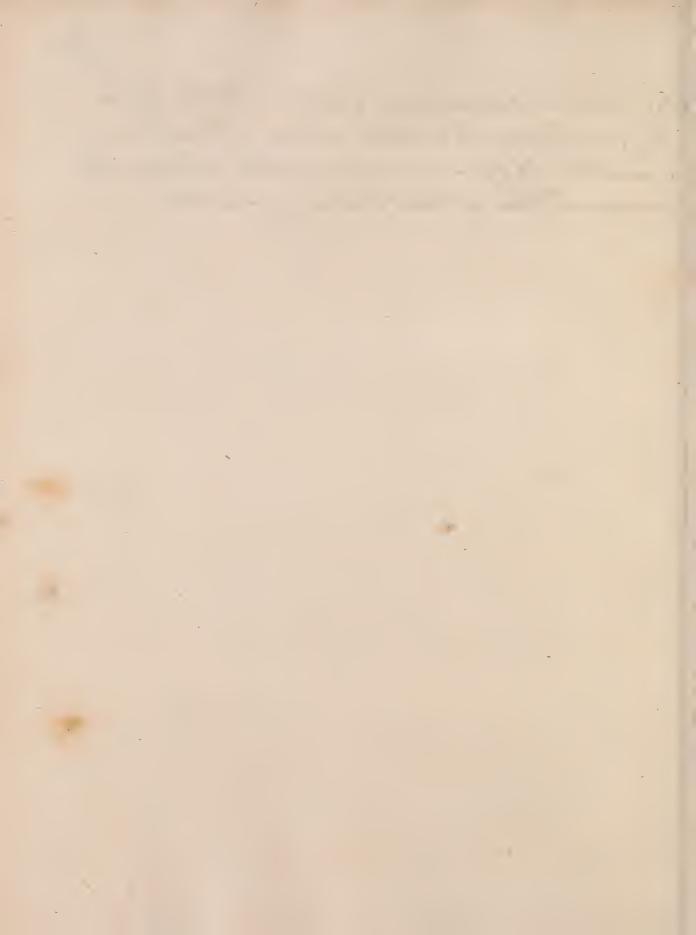
LIX. Certain Sensations van be produced by different Cauxes.

IX. no densations or Deas arise in & Mind, without, a free jon of hange ing Itate of & Bidy . Memory & Imagination renew only & Deas or densations formerly received & with y Conditions expressed.



21

IXI. Pertain Impressions & certain Hater of the Body analogous to getates which produce the Sensation of Consciousness may both act whom the nervous System without producing Sensation.



Of the action of Moving Tibres.

IXII. The moving Fibres (IV: 4) so far as yet known.

are of one Bind orthy, and & same every where as in the

most commonly known Muscles.

Hence & Ferms moving or muscular Tibres, are of

" same inthort.

y same import.

IXIII. a muscular dibre is supposed to have a par--timelar Organization Different both from that of simple solid Filres, & fromy of medultary Tilres, in any other part of y nervous System, but in what y heuliarity of organization consists is not get quely

LXIV. a musular Sibre is endued with a fontracti--lity which is different from it of grimple Solids, or other common Plasties, especially in this that its action is weited by faures which do not feet these others. It is weiter by & ktension of & Sibie and a fantraction is produced whilst istretching power continues to be applied. It is also weited by

Has not the heart of a forey, are everely on that of some other americale here have a server of the server all has been how been after the serveral

F. R. Pris.

perceive; but we know them to be such as do not affect common Starties.

In respect of these faces by which it may be a wited, if Contractifit, of musular Gibres has been called Fritability.

Whatever ceiter Contraction of musular Gibres is

"IXV. The force of Contraction in musular Silver is often much greater than It of y Causes witing it.

IXVI. The fontractility of musular Fibres (IXIV)

IXV) appears especially in living Bodies, was with

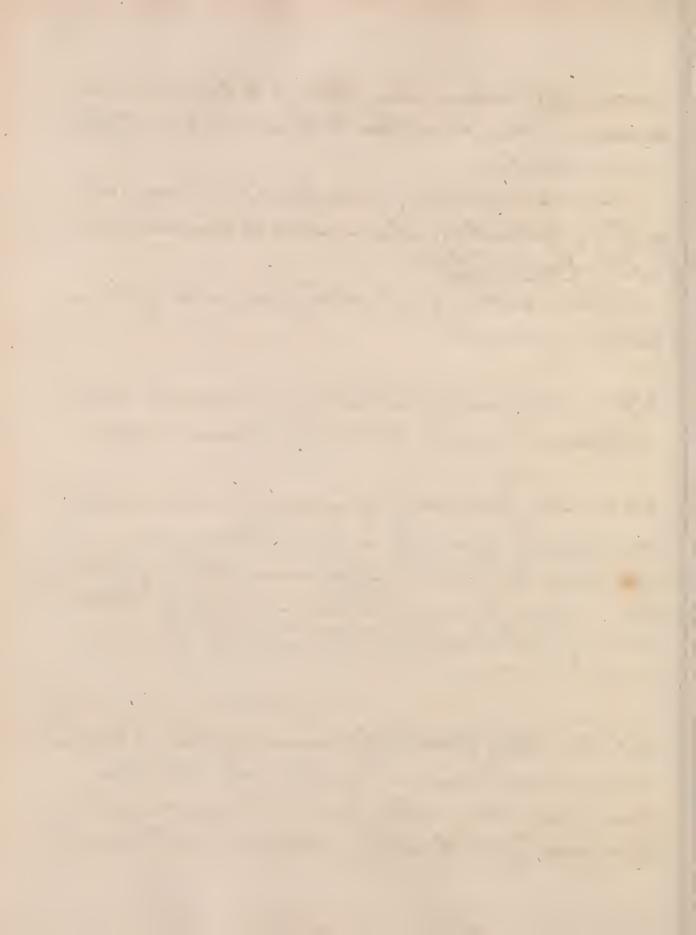
Pife or soon after & is propolly never produced but with

Life - Hence by some Writers it is called , "Vital

Power of Tolids," & & Tolids endued with it a living

Jolid"

IXVII. The Contractility seems to belong to musuales Tibres it some measure independently with their Connexion with gother frants of ganimal System. This power of Contractility therefore bath been with



respect to musular Fibres called a Visinsita and we shall it if inherent Jouer

IXVIII. The fortraction of musular Tibres can be excited by applications to other parts of g nervous System of applications made to their parts of g nervous of the stand and of applications made upon of herous between tween of place of application of g Musula to be moved it is supposed of governmenticated to them by a motion proposated along of Morves.

This power is called "The Horvous Power."

LXIX. The Herword power is most commonly determined to motion by a Will - This we suffere to act in a Brain only of I defend whom Sensation and other modifications of Thought This power chiefly table of Fine to gmind, and acting in a Brain only, we call a Animal Power

LXX. - The Jacility with which & inherent power can be quited - and of force weited by it in



She first se name The Mobility.

The first se name The Mobility.

The last - The Contractility, Times.

Both have been companied under y name of Corita.

-lility.

Sibres een both of them ve increased or diminished by various means. - The means of increasing & Con-tractility of Tibres - are called "Fonix Dowers"

Those that diminish & Mobility of Tibres are called "Fedative Dowers"

I.XXII. The inherent power is sufficied to be stronger, more moveable & more permanent in certain musualer Gibres than in others.

I.XXIII. The inherent power can be cailed, increased or diminished by certain applications made either to g muscle. Themselves or to g Horves connected with you, & in either case g Pfect of g application is so cautly grame as to make as conclude that g matter ing nerves & muscular Librer is of grame hind.



IXXIV. The muscular Tibres are versible to various Imprefrions & are otherwise Organi of Grenations of Consciousness (XXIII. 6:) & from this it is fresumed that they consist of grance matter that is grabient of Jense in other parts of greenous System -

LXXV. From LXIII. LXXIV. & other Considerations it is probable that & muscular Sibres are a continuation of & medulary substance of & Brain & Nerves, as alledges (IV.-4-)

LXXVI. The 'g musualar Sibres convirt of grame hind of Matter, as is also in g- Morves, the letter show no fortractility because they are not under grame fireumstances & have not g peucliar Organization (LXIII) of gormer.

LXXVII. The nervous (EXVIII) & girherent power (EXVIII) may subsist for some time without any Connection of generoe or muscle it; Brain & they subsist also in entire Bodies, for some time, seemingly. After Life has ceased. Both powers however are veeningly of equal duration in these respects and



neither power seems to subsist long but in entired living Bodies.

LXXVIII. In entire & living Systems of inherent power verns to have a considerable dipendence apon y nervous & both perhaps have a dependence a from y animal (EXIX)

LXXIX. The Contraction of muscular fibres does not depend immediately on & Motion of & 73 lood _

LXXX. The Contraction of a museuler Tibre does not depend on & Inflation of tericles or other such analogous Thrustare.

LXXXI. As I force of Cohesion in muscular Sibres
of living animals is much greater than in those of
lead ones, it is probable from this & other Considerations that I family muscular Contraction is am
increase only of y same power that causes their
Contraction as simple solids.

If this is true it will applain why y force of

fohesion of musualar Silver is greater than that
of medullary Gibres in any other parts of greavour



Lystem, the both hinds of Silves, by (LXXV) consist-Dy same hind of metter. -

1.XXXII. In living & healthy Animals, i musualar sibres have a constant Tendency to Contraction, and this is what we call their Jossie Power

LXXXIII. The tonic power of Musular Sibres necessariby supposes their being constantly in a state of florsion, I as if Itension of musular Sibres by (LXIV) proves a Stimulus to their Contraction, we suppose of if tonic power will, exteris paribus, bein proportion to if dayree of Jension.

IXXXIV. The muscular Sibres are heft constantly in an extended state, by of action of antagonist Museles, by if weight of i parts they sustain, by fluids vistending Cavities they surround, I by their Connection with such distended Cavities, perticularly is Blow topols.

LXXXV. If inherent power as mentioned in LXXXIII)
is in dependance upon of nervous & animal powers and
these may be increased or diminished by various facuses,



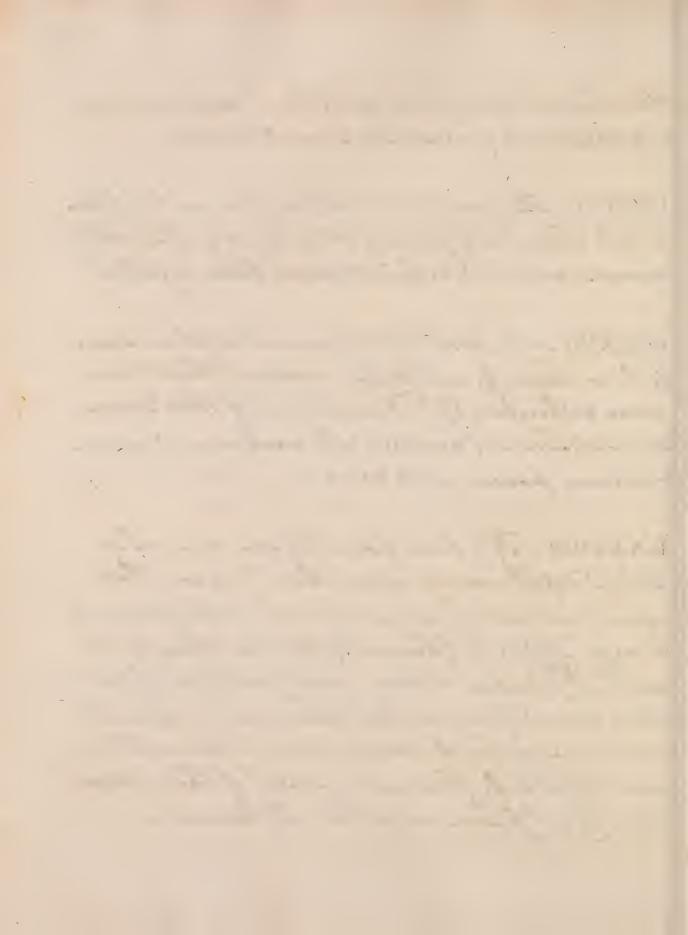
the inherent tonie power must be, in some measure, in proportion to g nervous & animal Jowers. -

LXXXVI. The force of Contraction of musular fibres will be always as if orce of Stimulus & is strength of nervous, animal & inherent power taken together.

LXXXVII. The Mobility of muscular fibres scens to be increased by whatever weakens their tonic forser & therefore by & Diminution of their Tonvion as mentioned in (LXXXIII) & by weakening & nervous & animal powers in (LXXXVIII).

LXXXVIII. A & tonic power of any muscular Sibres Depends more upon their Sension than upon y nervous or animal powers, unch fibres will be more affected by thanges of Sension than by the mulant Sed ative Dowers; & on a contrary of the tonic power of any Sibres depends more upon the nervous or animal Powers, such Sibres will be more affected by thanges in & State of Sension—

than by of Changes in & State of Sension—

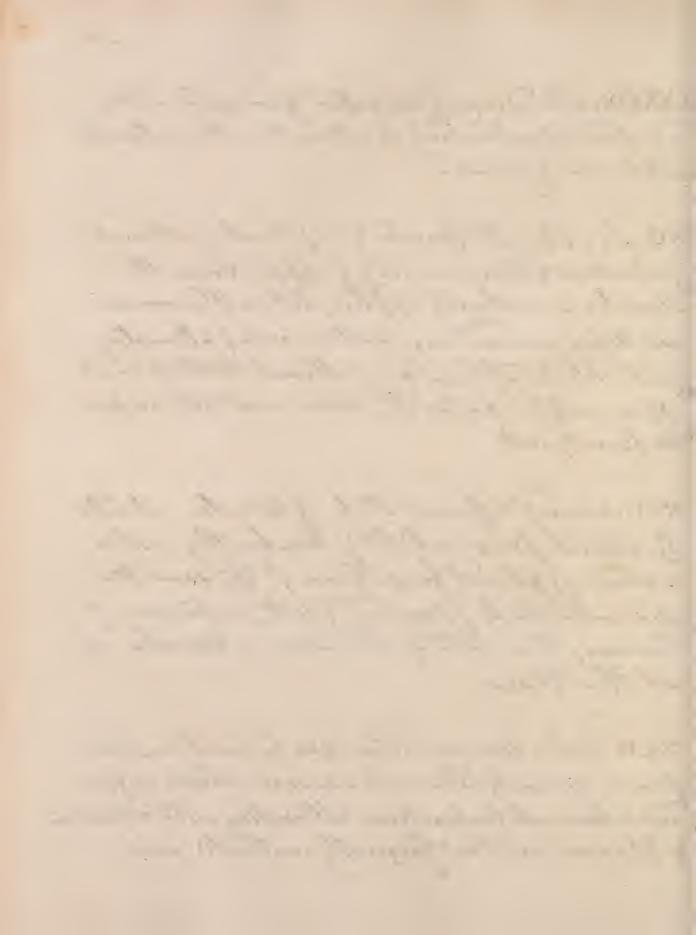


LXXXIX. The ordinary Contraction of musualar Silver is disposed spontaneously to alternete with a relaxation of Extension of grame.

SC. In y straight Muscles & in y Heart, galternote fontractions & Stimulus is constantly offsties, but in other museu-las Sibres surrounding lavities, as in galimentary land, Tolader of livine & galternote Motions don't appear unless a portion of Gibres is cut out, & separated from great.

SCI. Firomy different State of Minscher contracted by inherent posser, whilst of Member they sattern is moved by yternel force, from y of of vame Maneles contracted by of posser of g Will, we perceive, of there may be a state of relaxation in Museles with-out their Etension.

CII. When Museles acted whom by protornatural lands or contracted with unusual velocity or force and when such fortractions alternating with relaxations of fitnisions, are thus frequently contracted, such



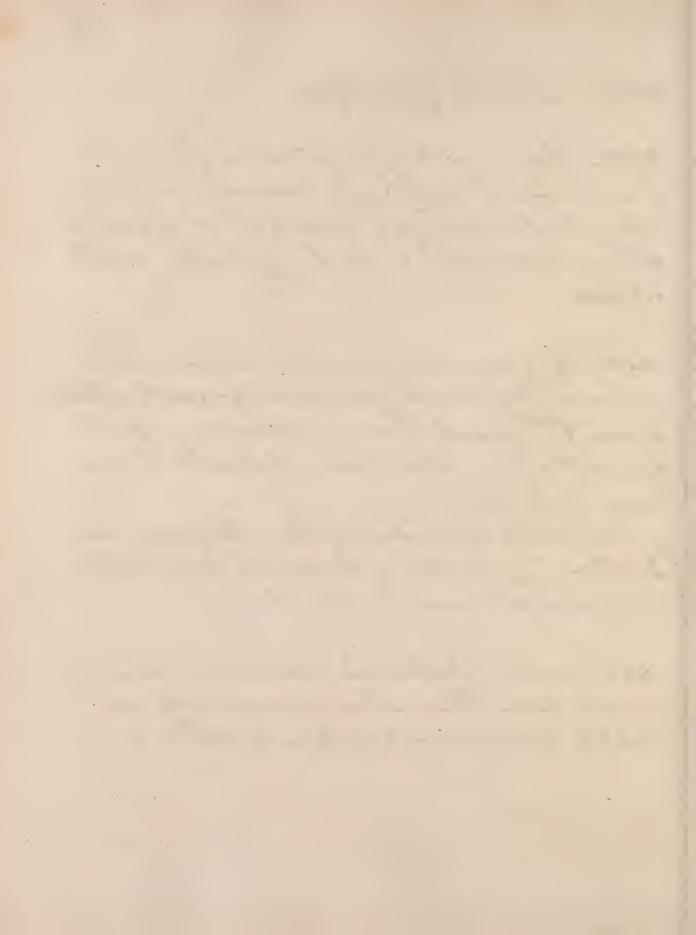
motions are called Convulsions

School that is not disposed spontaneously to alternate with Melogation, & which of Ribrer do not easily yield to affect of Flied - Such a Contraction is called Master

XCIV. A Contraction of musualer Sibres is exerted with much force I such Contraction in frequently repeated or ever if a moderate force of Contraction is repeated frequently for a certain time, if Contraction becomes unearly I weaker.

Buration, of Contraction of Murcles by being repealed is performed with more Stacility & Since.

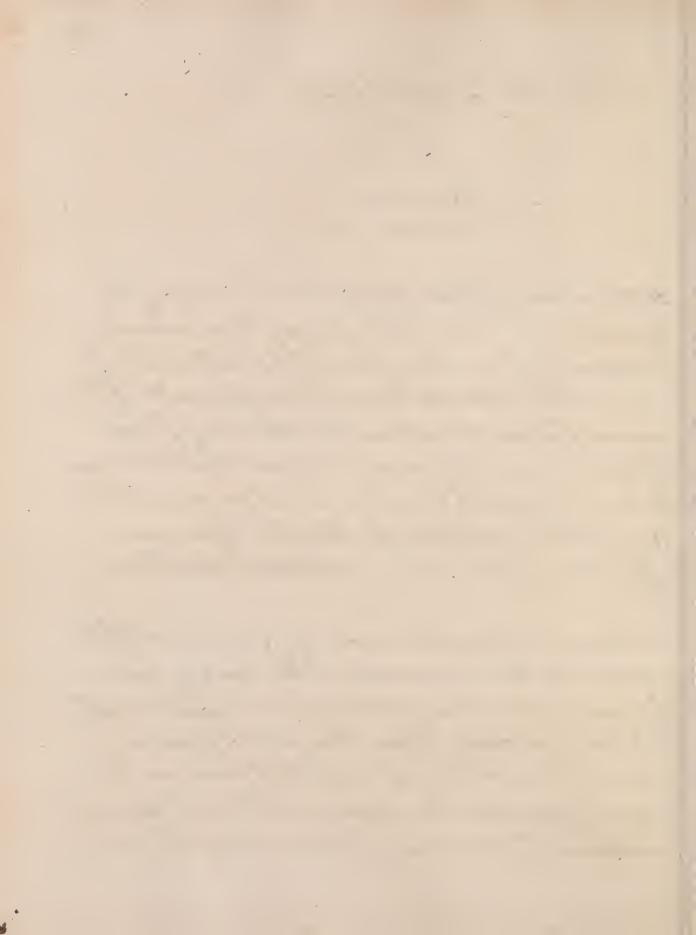
XCV. are not a Contraction froduced by a hotion of; animal power, There which more especially are liable to become uneasy & weak by Repetition?



Of the Sunctions
of the

Nerves or other means of destroying their continuity, it appears that in their entire States, motions may be communicated from the Brain to the other parts of the nervous System, & also from the latter to former, & from y vame Experiments it appears that the Brain IV. J. is gorgan of Sensation & Polition as explained IX. 2. - Shis is confirmed by the Effects of organic affection of & Brain on y intellectual Shacelties.

XCVII. As Impressions made whom any hart of the nervous System are communicated along & course of nerve whom which is Impression is made directly to & Brain & hardly to any other part of genervous System but by & Intervention of that Organ: as 2; many Impressions thus communicated areby IXI not accompanied by Sensation or Volition & may Therefore be

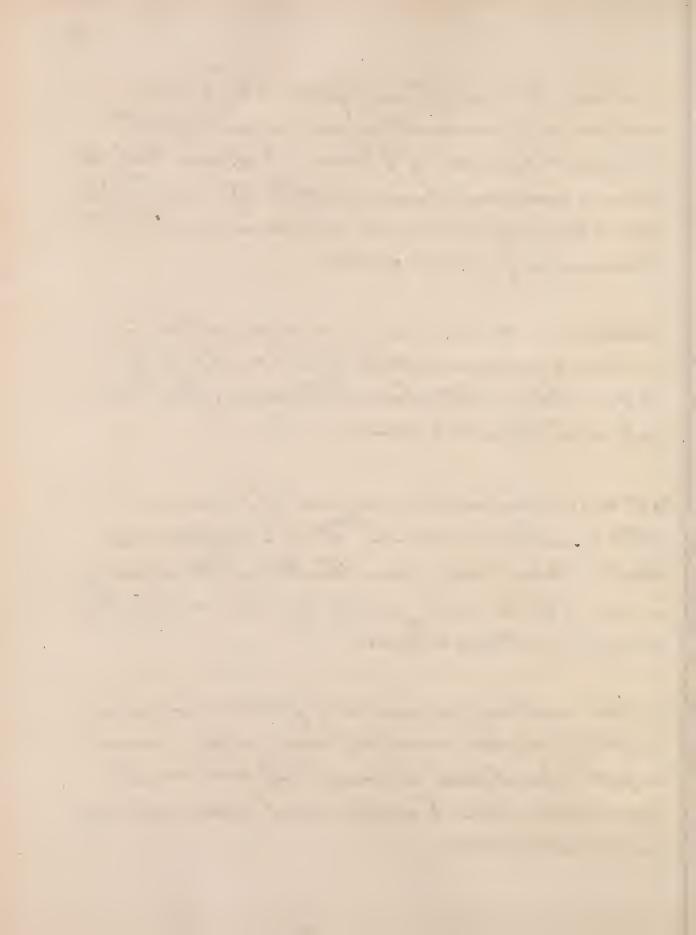


presumed to be merely mechanical & as 3 there mechanical formunications are variously modified by different fonditions of if Brain, it appears that the Brain is a corporeal Braan susceptible of various fonditions of thereby of considerable Influence in most of the Phanomena of a nervous System.

SCVIII. The Brain seems by its organization to be disposed to galternate States of rest & activity, of sleep & watching, but wherein this organization con-

XCIX. The for certain purposes of gleonomy a fluid is secreted in grain; it does not appear that sleep & Watching depend whom the State of this Suretion, or whom gless or greater quantity of such a scireted fluid present in grain & Revoes:

C. The's certain Compression of & Brain can produce a State of System resembling sleep, state is in some respects different from ordinary Sleep, & it does not appear that natural & ordinary Sleep depends a from any Compression of & Brain.



cI. As it is probable that Sleep & Watching do not depend upon go different quantity of g matter of gnervous power or whon any faures interrupting its motion while g matter semains grame, it seems probable that those statist depend whom g nature of g nervous power being enpable of burning more or less moveable of that it is especially in y Brain susceptible of those different Conditions, of affects in the whole System.

CIE. It appears that a certain ocque of Heet, the most part of Sensations, Impressions analogous to those producing Sensation, & & Son peters of the Blood in & Vefsels of Brain are the chief Causes of the moveable State of the nervous power in & Brain and Therfore of Nathaning -

Surfaces also that fold, is want of Senvations of Impressions, sedative Senvations of Impressions, Sedative Senvations of Impressions, Successfrom, or all violent frequent or long continued yearise of is animal power induce Theep, of diminish the moveable state of the nervous power in & Brain. —



CIV. As most of those Causes CII, create Instion in the Brain of most of those CIII. Diminish it, it is proballe from & The nomena of Sleep & Watching that g
nervous power in & Brain is truly capable of different States or Degrees of Inobility, which we shall call its State of Freitement and Collapse, but without intending by these Serms to appress or determine
any thing with respect to g nature of g nervous
power or wherein its different states consist.

Ov. The feitement of Brain appears to be in different degrees on different occasions. It seems to be greatest in different Marriaes and owed with uncommon strength, resisting the force of most Imprefsions & & most difficulty admitting Sleep-

CVI. A second or lower degree of Speitement is the ordinary State of watching in Men in Health, where the feitement is total with respect to the Torain & readily admits of follapse or sleep. But this Speitement may be in different degrees with respect to the rest of & System & is expressed by Vigor or Debility, by Courage or Similarty, by Alae.



-rity or Sluggishnefe & by Gaity or Jadnefe.

OUTI. In still lower degree of freitement, or the first degree of follapse is in i case of natural sleep, in which the follapse takes place in i Brain vous very entirely to interrupt the animal sunctions, but with the subvistance of i vital & natural only somewhat weakened - Even with respect to the animal sunctions the follapse is more or less complete as the Sleep is with or without oreaming, & as the dreaming is more or less active.

place in g case of Syncope; in which the Brain is so much & so totally collapses as not to be sufficient to g vital Sunitions. But we presume that there is still some degree of feitement while g Brain can be acted upon by the Stimuli that act only on vital powers & while its askal feitement is still recoverable by such stimuli. If the Collapse is more complete & irrecoverable, it is g state of ocath. That Syncope & Seath are owing to Causes with produce a Collapse of the Brain is probable from



the nature of many of those Causes & the Cireumstances of their operation -

On not defrond so much afron the degree of Collapse of feitement with respect to y whole System as afron those Conditions being more or left complete with respect to y Brain. But in assigning the fause of Sleep & Watering we have mentioned the frincipal Causes of the Different states of feitement in other respects.

If is proper in the next place to consider the different states of the other parts of a nervous by tem, which may be analogous to those of the

Brain or may influence them.

exange but what is exactly correspondent to the state of the same in a Brain & a only difference to be taken notice of in a Herver is their being more or less free or interrupted in Domitting the Sommunication of motion between their Origin and



ftremities -

a different State arises from the several fauses that we said before XXXIX, 2.3.4.5, might give a different degree of Sensibility & thereby determine the Effects of Impressions communicated to if Brain. are not these different states of the sentient Letter of the sentient of the Itales of the states of the states of ferent states of the states of feiternent of Collapse in the Brain?

IV. 4. may also be in different fonditions with respect to generous power in them, how farthis may arise from different firems tances in their peculiar Organization, we are uncertain, we can perceive more clearly that their fondition may be varied by a faceses affecting the state of their tonic power, LXXXIII, LXXXIV, by the power of habit, XCIV, & by their connection with topical Himuli, as in gease of the propensities (XXIII), while these are faces which may affect any of the moving of boxs, it is to be observed of



There are certain portions of them, as the muscles of voluntions motions, of muscular fibres of the arterial System, those of the alimentary Canal or perhaps some others which are apposed to the action of heculiar Causes, or to j general Causes more than other portions of grame Sibses.

Are not these Different states of general auses is free also somewhat an alogons to gestates of Reitement of Collapse in general CIV, or perhaps to those of the ventient of themities, CIX or CX.

EXIII. As afon almost every sufficient there is a mutual prefoure whom y origins & several stremities of the Norves, it is sufficiently probable that as & Conditions of either are changed, it must produce some change in y other.

Octo She Excitement of & Brain is to be considered of two hinds, your with respect to y mobility and this last with respect to Sensibility & Instability, and this last with respect to Sensibility & Instability, may affect the one more than the other. These differences appear in lage, Jan Sempurament



and in the same person whon different occasions, & the Conditions may be variously seperated & comlined, but if Cases are difficulty ascertained & the Causes always obsence.

CXV. The action of the Brain is quited not only by i (aures of faitement above mentioned, directly, list often also indirectly or secondarily by the various causes of tollapse.

CXVI. The letion of the Brain is determined frequential by fastom & Habit. See above XXVI.

XXXVIII, XXXXX, XIIII. XLIV, XIIX, LII, LVI & LVIII., 4.

for if Effect of fastom on Sensation, & XCIV for one Effect of y Dame on i action of moving Tibres.

His noss to be observed fasther, I, that fastom

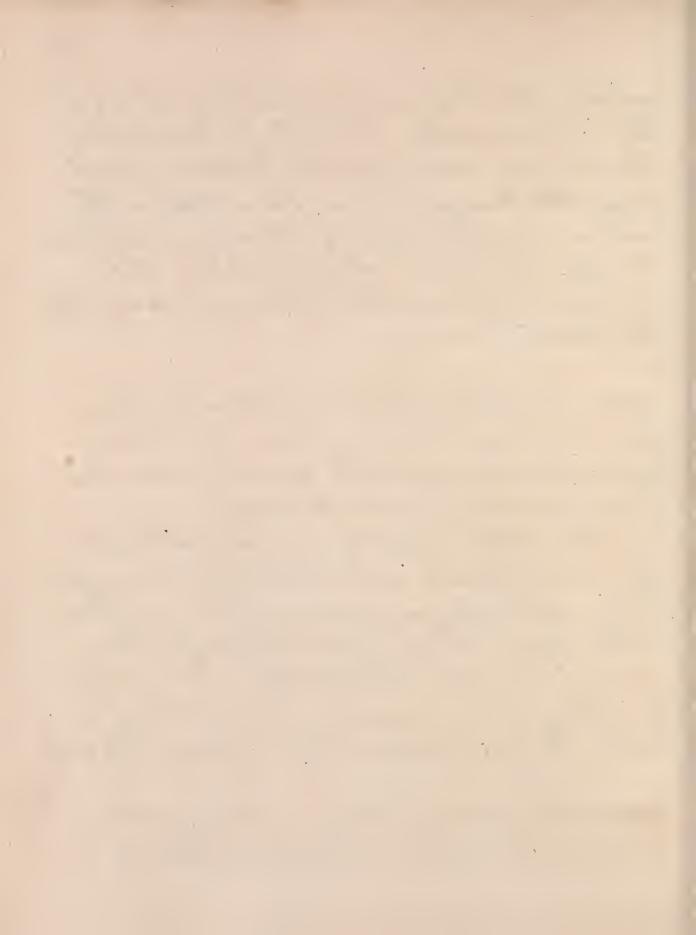
determines of degree of tension LXXXIII, that is need very to y littles of muscular Tibres - 2, that patrom associates motions with certain Improfime not otherwise their faces, 3, that fastom afrociates different Motions, so that they cannot be separately performed, 4: That Cartom determines the order of succession in afrociated Motions, the



they succeed one another - 5 & lestly, Custom established they succeed one another - 5 & lestly, Custom established the periodical return of certain Motions not need sarily to the Ocenomy or fixes the exact period of certain motions, by a laws of a Ceonomy are disposed to return at intervals. It will be obvious that in 2,3,4 &5, fustom operates in determining & regalating the action of a borain.

-tienlar Muscles or moving Ribrer - 5: by Stimulia applies to certain parts. The producing no Sensation, &: By of condition of certain parts, producing no Sensation, but by a fondition analogous or like to that which produces a Sensation of Consciousness. 3. By a Sense of pain or uneasiness arising from certain parts - 4. By of Irritability of certain parts, greater than that of others - 5, By a determination rendered more constant by Stimular Mabit - 6: By Irritation - 7- By Propensity & By Will.

CXVIII. The Action of Brain is withdrawn from writain parts or ceases with respect to them, by



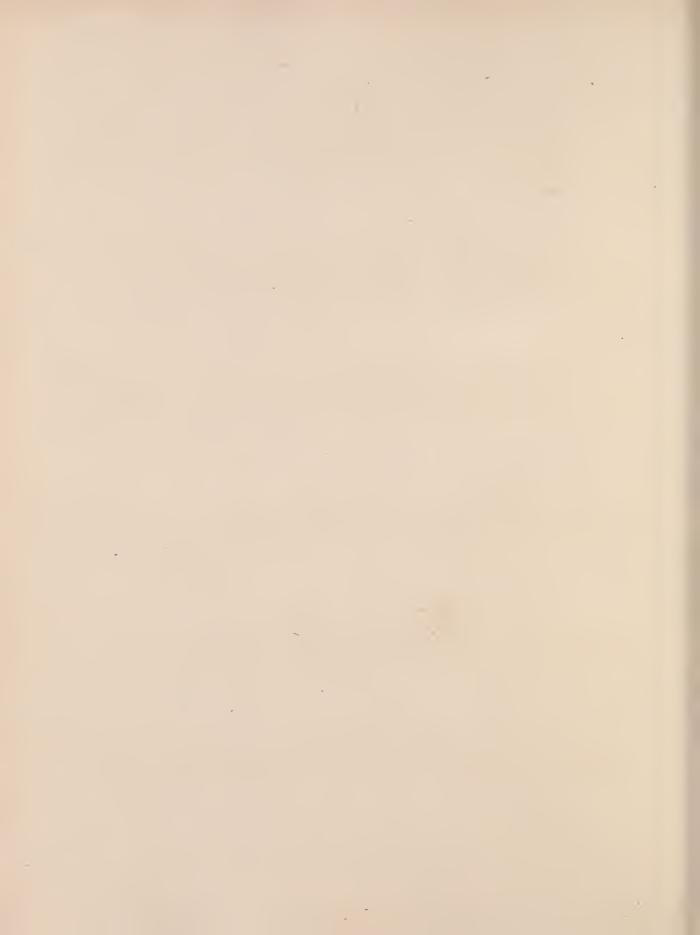
Causes contrary to some of these, CXVII, & it is often.
interrupted by faures interrupting y Communication of Motion from one part of g nervous Lystem.
to certain others.

CXIX. Most of the communications of Motion, between goifferent parts of nervous system, which have been mentioned as instances of particular some pathy between these parts, may, as we think be better explained by supposing a general Action of y Impression whom y Brain, by a particular effects are owing to y Causes of other minution or withorawing CXVII, CXVIII, then by supporting any real Connections between y Nerves of parts impressed racting either in their Course or Origin -

CXX. These are jetief Laws of prervous System they might perhaps be further illustrated & more exactly ascertained by a more particular Inquiry into y nature of this System, & those powers with operation it, but we are not so confident in our opin-nions on this subject, or of the application they will admit of, as to deliver them here.



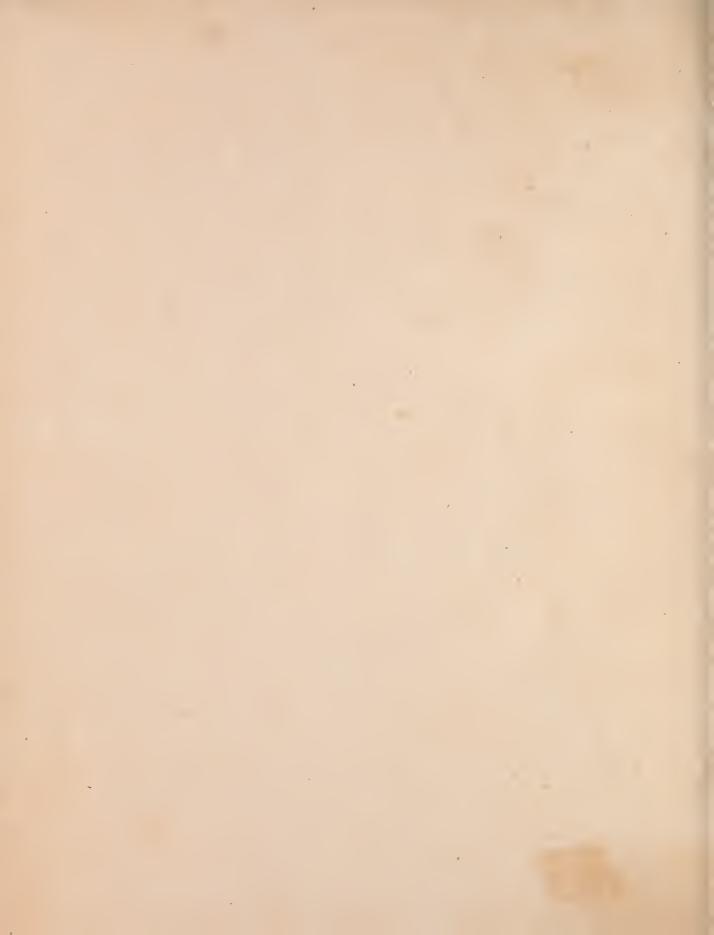












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